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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/898,624	07/03/2001	Yong Soo Choi	2060-3-05	2327
35884	7590	10/06/2004	EXAMINER	
LEE, HONG, DEGERMAN, KANG & SCHMADEKA, P.C. 801 SOUTH FIQUEROA STREET 14TH FLOOR LOS ANGELES, CA 90017			CHAWAN, VIJAY B	
			ART UNIT	PAPER NUMBER
			2654	

DATE MAILED: 10/06/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/898,624	Applicant(s) CHOI, YONG SOO	
	Examiner Vijay B. Chawan	Art Unit 2654	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-20 rejected under 35 U.S.C. 102(b) as being anticipated by Hardwick et al., (5,216,747).

As per claims 1,4, and 7, Hardwick et al., teach a method of estimating voiced/unvoiced information from a voice input signal (Col.10, lines 27-31), the method comprising the steps of:

transforming the voice input signal into an input spectrum having input spectrum energy (Col.10, lines 25-40);

obtaining a synthetic spectrum having synthetic spectrum energy using at least one of a fundamental frequency, a harmonic size and a window spectrum (Col.6, lines 25-40);

determining L voice level decision band from the input spectrum and the synthetic spectrum, wherein L is an integer (L voicing level bands, Col.6, lines 25-27);

determining a corresponding band spectral difference energy for each voice level decision band by finding difference between the respective input spectrum energy and the respective synthetic spectrum energy (as taking the differential between the energies – Col.6, lines 50-60);

normalizing the band spectral difference energy with the input spectrum energy to determine a normalized spectral difference energy for respective voice level decision band (the denominator in equation 19, used as the normalizing factor); and,

calculating a voicing level corresponding to the respective voice level decision band using the normalized spectral difference energy (Col.6, lines 50-59).

As per claims 2 and 8, Hardwick et al., teach the method according to claims 1 and 7, wherein the voicing level is calculated by subtracting the normalized spectral difference energy from 1 (As D, according to equation 20, rewritten as $1 - \{ \check{S}_w(\omega)/S_w(\omega) \}$).

As per claims 3 and 9, Hardwick et al., teach the method according to claims 2 and 8, wherein the voicing level is set to a value between 0 and 1 (Col.6, lines 40-50).

As per claims 5 and 10, Hardwick et al., teach the method according to claim 1, wherein L has a value between 10 and 60 (Col.9, lines 10-30).

As per claim 6, Hardwick et al., teach the method according to claim 1, wherein the voice level input signal is transformed into the input spectrum having input spectrum energy using Fourier transformation (Col.2, lines 50-53).

Claims 11-20 are apparatus claims similar in scope and content of method claims 1-10, and are rejected under similar rationale.

Conclusion

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Hardwick et al., (5,581,656) teach methods for generating the voiced portion of speech signals.

Hardwick et al, (5,226,108) teach processing a speech signal with estimated pitch.

Grabb et al., (6,067,511) teach LPC speech synthesis using harmonic excitation generator with phase modulator for voiced speech.

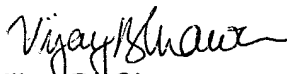
Nishiguchi et al., (5,809,455) teach a method and device for discriminating voiced and unvoiced sounds.

Yeldener (5,890,108) teaches low bit-rate speech coding system and method using voicing probability determination

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Vijay B. Chawan whose telephone number is (703) 305-3836. The examiner can normally be reached on Monday Through Thursday 7-4.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richemond Dorvil can be reached on (703) 305-9645. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Vijay B. Chawan
Primary Examiner
Art Unit 2654

vbc

VIJAY CHAWAN
PRIMARY EXAMINER